

The combination of these elements is not met by the cited prior art.

The Examiner cites Aoki, column 13, lines 13-22, as indicative that Aoki is capable of handling multiple inputs. However, just the opposite is clear from the cited portion of Aoki. In column 13, lines 8-22, Aoki describes a single parameter, namely temperature at the ceiling of the furnace as being a control parameter while a single variable, namely, oil consumption is a manipulated input. It is only the thermal characteristics that are known through prior analysis and capable of being approximated for an extended system dead time. Various other input conditions are evaluated but they are employed to simply compensate for a single deviation “capable of effectively damping variations in the temperature deviation” (column 13, lines 39-40). Thus, there is no comparable fuzzy logic control as set forth in claim 10 which results in the “generating a plurality of output signals for respective actuators that will control melting in the furnace.”

The claims currently before the Examiner also include a learning means which make it possible to define the laws of furnace operation, selectively from a learning phase of the predictive network while the furnace undergoes actual operation or by means of furnace operation simulation. There is no comparable capability in Aoki. The Examiner compares this to the evaluation of operator input disclosed by Aoki, as mentioned in column 13, lines 13-22. However, the only disclosure in this portion is that the thermal characteristics of an oven may be approximated for an oven having dead time of about 5 hours. Also, it is mentioned that temperature characteristics are known to vary with certain operating conditions and these establish known input information as prior information. However, there is no teaching or suggestion that this prior information can be selectively learned from a learning phase of a predictive network during actual furnace operation or by simulation. Accordingly, there is no basis in Aoki for a learning means as defined in the claims.

In paragraph 5 of the Office Action, the Examiner relies upon Victor for teaching an image analyzing system as set forth in the claims. However, applicants respectfully disagree. Victor is concerned with the classification of flames in a furnace. It is concluded on page 478 (line 5) of the article that the classification of the flame has some

meaning or correlation to physical phenomenon occurring inside the furnace. It is inferentially mentioned in column 2, lines 16-18 that a vision system can also allow for the monitoring of the state of the combustion chamber walls, the performance of bubblers, or the presence of non-fused materials. However, nowhere in the Victor article is there a sufficiently detailed disclosure of how this information could be used by a fuzzy controller to generate a plurality of output signals for respective actuators that will control melting in a furnace. Of course, Aoki does not contemplate a video system since the input to the fuzzy predictor of Aoki includes "prior information" as opposed to monitored video data. In paragraph 5 of the Office Action, the Examiner concludes by mentioning that it would be obvious to combine Victor and Aoki because "Victor et al. teaches that it would result in a fast control system implementation." Applicant respectfully disagrees since Victor is limited to classification and monitoring and there is no disclosure of system implementation such as generating a plurality of output signals for respective actuators that will control melting in a furnace as defined in claim 10 and incorporated in the remaining dependent claims.

In paragraphs 6 and 7 of the Office Action, the Examiner rejected claims 15 and 18 under 35 U.S.C. § 103(a) as being unpatentable over Aoki and Victor and further in view of Miller (U.S. Patent No. 4,409,012). Miller shows a video camera for monitoring an area of a glass furnace. The purpose of the monitoring is to generate a histogram and the areas defined by the histogram above and below threshold values provide a reasonable estimate of batch and melt amounts. In applicant's estimation, the video systems cited by the Examiner are directed to two completely different and non-related applications. Victor to a flame classifier or generalized monitor, while Miller has the specific function of using an image system to estimate batch or melt volume. There is no connecting thread between these video systems and Aoki so as to justify a rejection on this ground. Applicant does not believe that a sufficient showing exists from the Examiner's conclusion on page 4, line 2, wherein the combination of references is justified "because Miller teaches that it was a more efficient monitoring means."

For the reasons set forth above, applicant believes that a withdrawal of the final rejection and an allowance of the claims is appropriate.

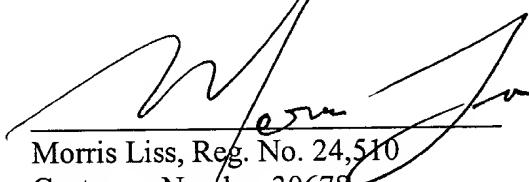
In view of the above, consideration and allowance are, therefore, respectfully solicited.

In the event the Examiner believes an interview might serve to advance the prosecution of this application in any way, the undersigned attorney is available at the telephone number noted below.

The Commissioner is hereby authorized to charge any fees, or credit any overpayment, associated with this communication, including any extension fees, to CBLH Deposit Account No. 22-0185.

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Respectfully submitted,



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